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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/474,299 | 12/29/1999 | MARCEL F.C. SCHEMMANN | PHA-23.939 | 2088 |

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EXAMINER

KIM, DAVID S

ART UNIT PAPER NUMBER

2633

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

X

| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 09/474,299 | Applicant(s) SCHEMMANN ET AL. | |
| | Examiner David S. Kim | Art Unit 2633 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 28-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 28-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 February 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. Applicant's compliance with the objections to the drawings in the previous Office Action (mailed on 18 November 2004) is noted and appreciated. Replacement drawing sheets were received on 18 February 2005. Fig. 6 is approved. However, Figs. 5 and 7 are still disapproved. Upon further review of the drawings and the specification together, the Office has noticed numerous informalities. Some examples include:

Replacement Fig. 5 (filed on 18 February 2005) reintroduces issues raised in a previous Office Action (mailed on 15 June 2004). That is, reference character 338 is missing, again. Also, reference characters 372 and 377-378, which were deleted in a previous replacement Fig. 5 (filed on 15 September 2004), appear again in present replacement Fig. 5 (filed on 18 February 2005).

In replacement Fig. 7 (filed on 18 February 2005), reference character "554" appears to be located in the wrong location. The bridging paragraph of p. 35-36 indicates that "554" should label a path that is connected to optical splitter 552.

A thorough and careful review of the drawings and the specification together is strongly encouraged.

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following feature(s) must be shown or the feature(s) canceled from the claim(s):

(**claim 30**) wherein the controller is configured to control an interconnection of the optical input paths with the optical output paths; and

(**claim 33**) controlling an interconnection of the optical input path with the optical output paths.

Notice that the specification (p. 27, l. 19-22) expressly notes that this feature is not shown.

No new matter should be entered.

Specification

3. Applicant's compliance with the objections to the specification in the previous Office Action (mailed on 18 November 2004) is noted and appreciated. However, upon further review of the drawings and the specification together, the Office has noticed numerous informalities. Some examples include:

Replacement paragraph (filed on 18 February 2005, p. 4) beginning at page 32, line 29, reintroduces an issue raised in a previous Office Action (mailed on 15 June 2004). That is, on p. 33, 1st paragraph, "to an optical up-converted and up-converter" is used where -- to an optical up-converter and up-converted -- may be intended.

Replacement paragraph (filed on 18 February 2005, p. 8) beginning at page 36, line 23, corrected one instance of "HCU 606-608" by change this instance to -- HCU 604-605 --. However, another instance requires correction. In this same paragraph, "HCUs 606-608" is used where -- HCUs 604-605 -- may be intended.

In Paper No. 20 (filed on 11 May 2004), p. 4-5, bridging paragraph, 1st line, "figurers 2" is used where -- figure 2 -- may be intended.

In Paper No. 20 (filed on 11 May 2004), p. 5, middle paragraph, "214" is used where -- 213 -- may be intended. See amended (filed on 15 September 2005) and approved (approval mailed on 18 November 2005) Fig. 1.

Claim Rejections - 35 USC § 112

4. Applicant's response to the rejection of claim 2 under 35 U.S.C. 112, second paragraph in the previous Office Action (mailed on 18 November 2004) is noted and appreciated. Claim 2 is presently cancelled. Thus, the previous rejection is moot and withdrawn.

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. **Claims 28-33** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the

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specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In particular, notice the following limitation in independent claim 28 (similarly disclosed in independent claim 31):

“the controller is configured to control **a modulation frequency of the each of the optical output signals**” (emphasis Examiner’s).

However, the disclosure does not provide such teachings. More exactly, notice the following portions of the specification that describe this controller:

Regarding elected Species 4 (filed on 10 March 2003) shown in Fig. 11,

“In HCM 815, receiver 820 (see figure 3) convert's the input return optical signal to an input return electronic signal. The input return electronic signal is routed to frequency converter 821 which converts the input return electronic signal into an output electronic return signal with higher frequency carrier signals than the input return signal. For example, input return signals with a carrier frequency band of 100-200 MHz are converted to output return signals with a carrier frequency band of 400-600 MHz for some HCMs and 600-900 MHz for other HCMs. The output return electronic signal is routed to transmitter 822 (see figure 2) which converts the output return electronic signal to an output return optical signal. Splitter 823 routes the output return optical signal into common fiber 817 and routes the forward digital signal from common fiber 817 into fiber 804. **Controller 829 controls receiver 820, frequency converter 821 and transmitter 822 as previously described for controller 225 with reference to figures 1-3.**

In DWDM fiber-hub 791, splitter 825 routes the forward analog optical signal from common optical fiber 826 to multiple optical fibers 807-808 which are connected to respective HFCNs. **Controller 829 is connected to receive the output (and possibly also the input) return electronic signal from each HCM and to control the apparatus of each HCM. For HCM 815, controller 829 is connected to receiver 820 as described for figure 2, is connected to frequency controller 821 to control the frequency conversion of each carrier signal, and is connected to transmitter 822 as described for figure 3**” (Applicant’s specification, p. 40, l. 9-26, emphasis Examiner’s).

This portion of the specification quoted above refers to other parts of the specification for further description about the controller. Another part of the specification discloses,

“The optical up-converter 180 also includes DWDM 220 which combines all the optical signals (light beams) in optical paths 215-219 into a single common optical path 221. Output coupler (222) connects common fiber (223) to output optical path (221). **Controller 225 controls the conversion of frequencies in electronic up-converters 201-204 and controls the wavelength of laser transmitters 210-214. In addition, (not shown) the controller may control the connections between the optical receivers 182-185 and electronic up-converters 201-204 and/or between electronic up-converters 201-204 and laser transmitters 210-214 in order to provide flexibility and rerouting around failed components such as failed laser transmitters. The controller may control various portions of the receivers end transmitters as described below with reference to figures 2 and 3**” (Applicant’s specification, p. 27, l. 15-23, emphasis Examiner’s).

These quoted portions of the specification teach that the controller controls “*the frequency conversion of each carrier signal*” and “*the conversion of frequencies*”, but does not appear to teach the specific limitation of new claims 28-33 that the controller controls “*a modulation frequency of each of the optical output signals*”. In other words, although the disclosure supports the general, broader teaching of the controller controlling “*the frequency conversion of each carrier signal*” and “*the conversion of frequencies*”, the disclosure does not appear to support Applicant’s new limitation in new claims 28-33 of the controller controlling “*a modulation frequency of each of the optical output signals*”. This apparent lack of support for this new limitation indicates that this new limitation constitutes **new matter**. Accordingly, claims 28-33 contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As a remedy, Examiner respectfully suggests changes in the claim language so that the claims more closely reflect supported teachings about the controller. Suggested examples follow:

- “the controller is configured to control ***a frequency conversion of a carrier signal***”
- “the controller is configured to control ***the conversion of frequencies in electronic upconverters***”

Caveat: a different reading of the contested limitation

Again, notice the following limitation in independent claim 28 (similarly disclosed in independent claim 31):

“the controller is configured to control **a modulation frequency of the each of the optical output signals**” (emphasis Examiner’s).

If Applicant intends “modulation frequency” to mean the optical wavelength of each of the optical signals, then the above rejection of claims 28-33 is moot and withdrawn. If Applicant does not intend “modulation frequency” to mean the optical wavelength of each of the optical signals, then the above rejection of claims 28-33 stands.

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7. **Claim 28** is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for:

“a controller coupled to the plurality of optical converters and configured to control a conversion of an optical input signal to an optical output signal”,

does not reasonably provide enablement for:

“a controller coupled to the plurality of optical converters and configured to control an *optical* conversion of an optical input signal to an optical output signal” (emphasis Examiner’s).

The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with this claim.

In the field of optical communications, the phrase “optical conversion of an optical input signal to an optical output signal” carries the connotation that this conversion takes place in the *optical* domain. However, Applicant’s invention does not operate in this fashion. Rather, Applicant’s Figs. 4 and 11 show that Applicant’s invention performs an “optical conversion of an optical input signal to an optical output signal” by performing frequency conversion in the *electrical* domain. In other words, the metes and bounds of claim 28 cover intellectual property that Applicant’s disclosure does not disclose or enable. As Applicant’s disclosure does not provide further teachings about frequency conversion in the *optical* domain, one of ordinary skill in the art would require undue experimentation to make and use the invention of claim 28. Thus, the specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with claim 28.

As a remedy, Examiner respectfully suggests changes in the claim language so that the claims more closely reflect supported teachings about the controller. A suggested example follows:

- “a controller coupled to the plurality of optical converters and configured to control a conversion of an optical input signal to an optical output signal” (simple removal of the term “optical” to broaden the claim)

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. **Claims 28-33** are rejected under 35 U.S.C. 102(b) as being anticipated by Sasayama et al. (U.S. Patent No. 5,506,712, hereinafter “Sasayama”).

Sasayama discloses:

(**claim 28**) An optical apparatus comprising:

the optical input paths (e.g., inputs on left side of Figs. 3 or 14);

the optical output paths (e.g., outputs on right side of Fig. 3 or outputs from converters in Fig. 14);

the optical converters (e.g., photodetector 6-3 and laser 6-6 in Fig. 6, which is a tunable frequency converter in Fig. 3, or semiconductor laser 20-1 in Fig. 20, which is a tunable wavelength converter in Fig. 14);

the controller (e.g., header analyzer 6-5 in Fig. 6 or wavelength allocation network 14-6 in Fig. 14), wherein

the optical input signal and the optical output signal have a same information content (e.g., CBA at the input and CBA at the output in Figs. 6 and 20); and

the controller controlling a modulation frequency of each of the optical output signals (e.g., the header analyzer 6-5 controls the frequency at which the optical output signal is modulated, col. 6, l. 16-34; e.g., wavelength allocation network 14-6 controls the wavelength/frequency at which the optical output signal is modulated, col. 15, l. 50 – col. 16, l. 4).

(**claim 29**) The optical apparatus of Claim 28 wherein the controller is configured to control a wavelength of the optical output signal (frequency is simply the inverse of wavelength, thus, Sasayama controls a wavelength of the optical output signal; wavelength allocation network 14-6 controls output wavelengths in Fig. 14).

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(**claim 30**) The optical apparatus of Claim 28 wherein the controller is configured to control an interconnection (the frequency/wavelength assignment of Fig. 3 controls the interconnection of the input and output optical paths) of the optical input paths with the optical output paths.

(**claims 31-33**), claims 31, 32, and 33 are method claims that introduce limitations that correspond to the limitations introduced by apparatus claims 28, 29, and 30, respectively. Therefore, the recited means in apparatus claims 28-30 read on the corresponding steps in method claims 31-33.

Response to Arguments

10. Applicant's arguments with respect to claims 28-33 have been considered but are moot in view of the new ground(s) of rejection. Applicant's arguments are based on new claims. These claims are addressed by new references from Sasayama.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kartalopoulos teaches an apparatus and method for controlling a conversion of optical input signals into optical output signals and for controlling a modulation frequency of each of the optical output signals. For example, see Fig. 3 of Kartalopoulos.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

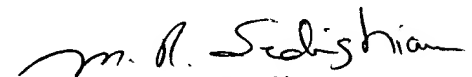
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Kim whose telephone number is 571-272-3033. The examiner can normally be reached on Mon.-Fri. 9 AM to 5 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571-272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DSK


M. R. SEDIGHIAN
PRIMARY EXAMINER



Approved by DSK

11 OCTOBER 2005

5/11

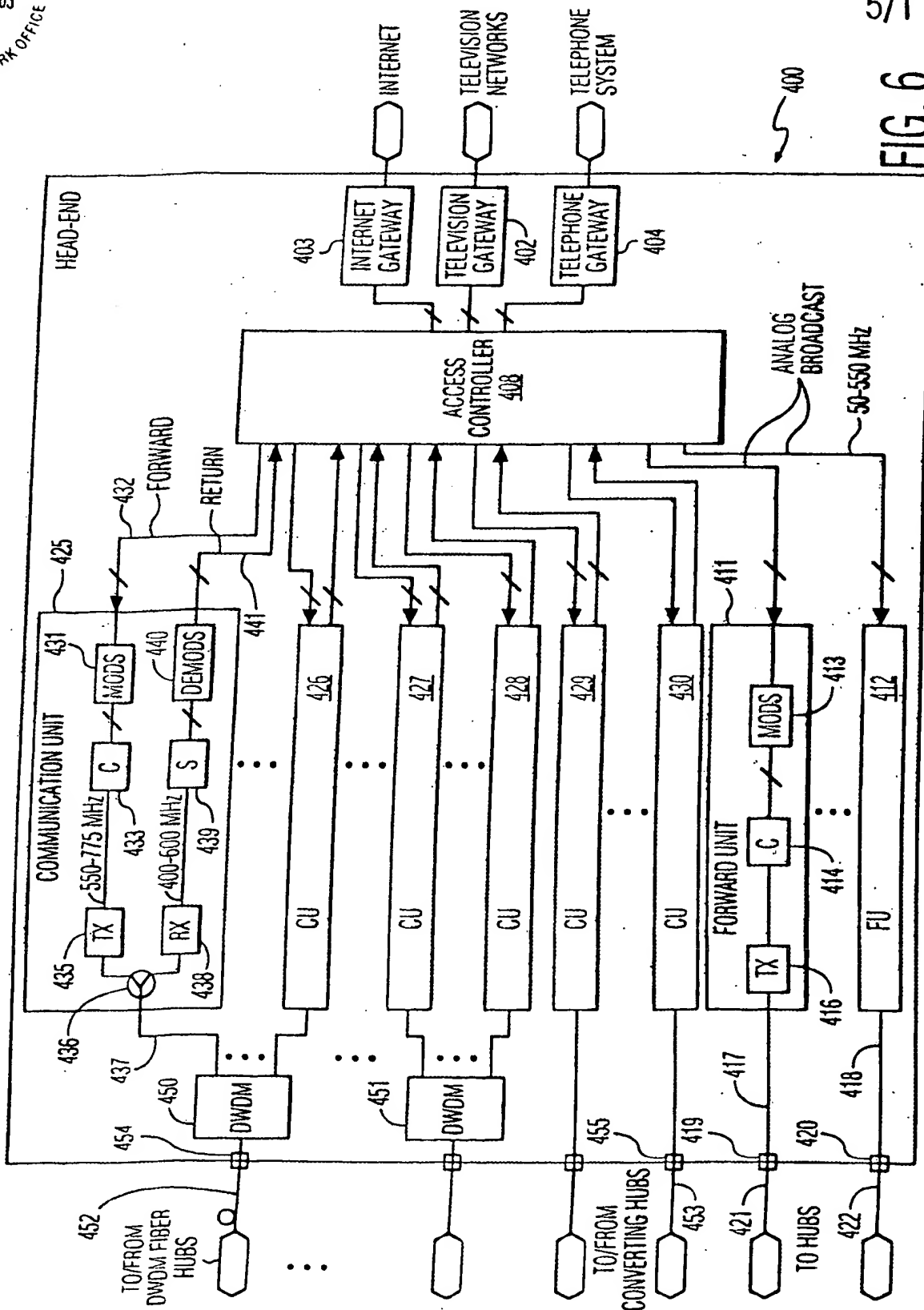


FIG. 6

Disapproved by DSK
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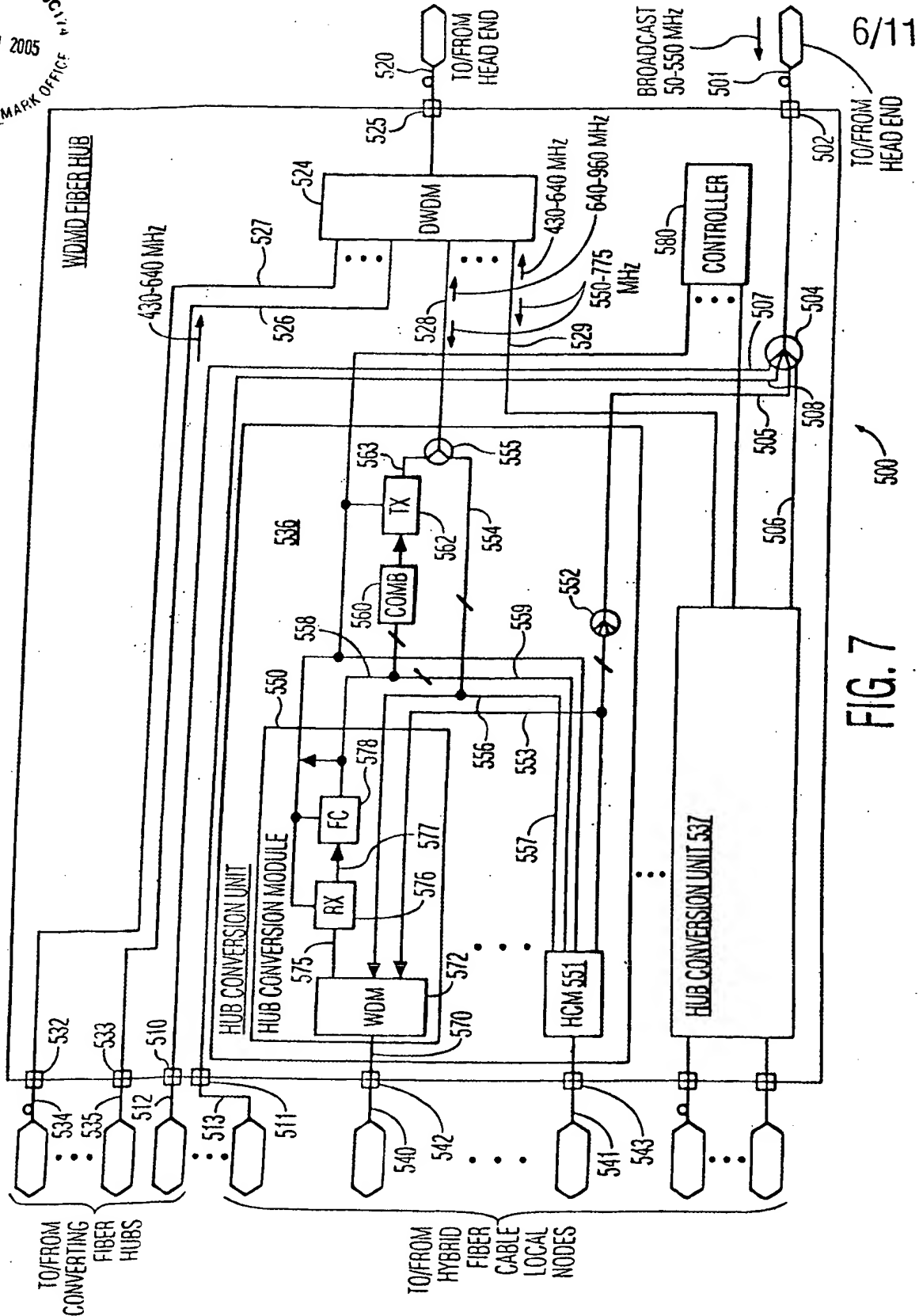
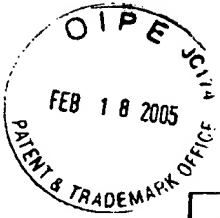


FIG. 7